



# Service Documents

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**Vertraulich! Nur für autorisierte Servicetechniker!**  
**Nicht zur Weitergabe an Dritte freigegeben!**

# L.U.C.A.S.

# Nano 300

## **Note!**

The components used in this product - particularly parts affecting safety as well as speakers and transformers - were developed and manufactured to certain specifications. Please use original spare parts only to ensure the product remains fully functional and safe.

## **Achtung!**

Die in diesem Produkt verwendeten Komponenten, insbesondere sicherheitsrelevante Teile, Lautsprecher und Transformatoren wurden nach spezifischen Vorgaben entwickelt und gefertigt. Bitte benutzen Sie ausschließlich Original-Ersatzteile – nur so ist die volle Funktionalität und Sicherheit gewährleistet.



## **TECHNICAL SERVICE:**

Stamer Musikanlagen GmbH • Magdeburger Str. 8 • 66606 St.Wendel • Germany  
Music & Sales P.E. GmbH • Leipziger Str. 3 • 66606 St.Wendel • Germany

# HK AUDIO

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## 1 General Information

### 1.1 Unpacking and Inventorying



Remove all the component parts of LUCAS NANO 300 from the carton and make sure you have received all items.

LUCAS NANO 300 consists of a subwoofer and two satellites. A protective cover and a mains cable are also included.

### 1.2 Unfastening Transport Latches

Latches secure the LUCAS NANO 300 satellites to the subwoofer to protect them during transport. Here's how to undo them:

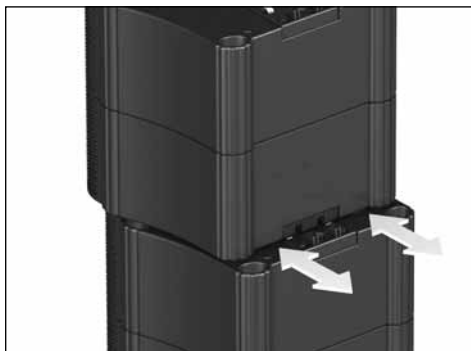


- Standing at the back of the system, turn the locking knobs on both sides backward to unlock the satellites. Remove the two LUCAS NANO 300 satellites from their cradle.
- Always make sure these knobs engage to lock the speakers down for transport.

### 1.3 Easy Click Connector

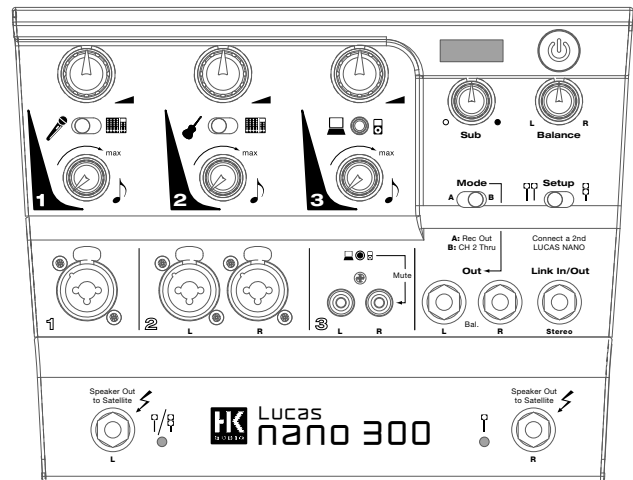
- This mechanical and electric coupler connects the modules.

Easy Click is very easy to disconnect: Simply push the top satellite back and lift the enclosure to remove it.

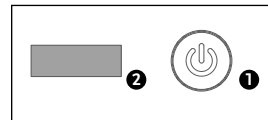


To connect a satellite, set it on the top panel and push it forward.

## 2 Connectors and Controls



### 2.1 Power/Status Section



#### 1 Power

This switches LUCAS NANO 300 on and off.

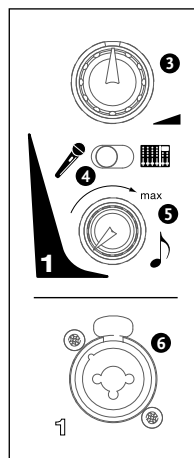
#### 2 Status Indicator

Dual-color LED (green = power on, red = limit/error). The LED briefly flashes red to tell you the limiter is responding to signal peaks.

**Caution! If the Status LED stays red while the system is fully operational, it is being overloaded. Turn down the signal level! If you are not feeding a signal into the system and the Status LED stays red, there has been malfunction.**

Note: LUCAS NANO 300 performs a system check after the system is powered up or the Setup switch is engaged. The Status LED lights up red for about five seconds during this time. It will light up green if there is no error and the system is getting mains power.

### 2.2 Input Section 1



#### 3 Volume

This rotary knob adjusts the volume for this input. Twist it counterclockwise to the far left to turn the signal level all the way down and clockwise to the far right to turn the level all the way up.

#### 4 Mic/Line

This switch adjusts the input sensitivity or gain of Input 1 for use with a dynamic microphone or a line signal. At the same time, it configures the integrated filter for Voice (microphones) and Contour (line signal) applications.

## 5 Voice/Contour

This rotary knob tunes the LUCAS NANO 300's sound to suit the input signal.

- If the Mic/Line switch is set to „Mic“, this rotary knob adjusts the sound for speech.

Far left position = no change in tone

Far right position = maximum tuning effect

- When the Mic/Line switch is set to „Line“, you can use this knob to tune the system for music signals. It boosts low and high frequencies while cutting midrange frequencies.

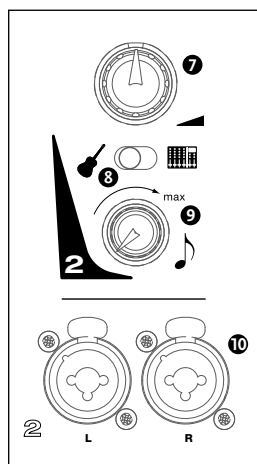
Far left position = no change in tone

Far right position = maximum effect

## 6 Input 1

This multipurpose XLR/1/4" mono input is electrically balanced to accept a dynamic microphone or a line signal. The input signal is routed to both the left and right outputs of LUCAS NANO 300.

## 2.3 Input Section 2



### 7 Volume

See Input Section 1 for a description.

### 8 Instrument/Line

This switch configures Input 2's sensitivity or gain for an instrument such as a guitar or for a line signal.

### 9 Contour

This rotary knob voices the audio signal; that is, it adjusts the tone.

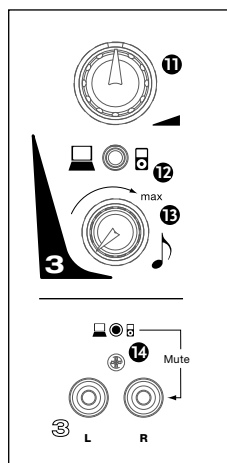
It boosts low and high frequencies while cutting midrange frequencies.

- Far left position = no change in tone
- Far right position = maximum effect

## 10 Input 2 L/R

This multipurpose XLR/1/4" mono input is electrically balanced to accept an instrument or a line signal.

## 2.4 Input Section 3



### 11 Volume

See Input Section 1 for a description.

### 12 Mini-Jack Input (3.5 mm)

Use this stereo input to connect MP3 players or the headphones output of a laptop.

**Heads up: Plugging a connector into this input mutes the Stereo RCA Input (14).**

### 13 Contour

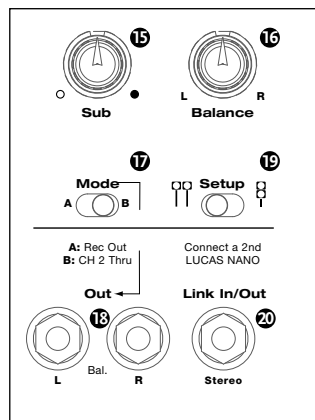
This rotary knob adjusts the audio signal's tone. When it boosts high and low frequencies, it also rolls off midrange frequencies.

- Far left position = no change in tone
- Far right position = maximum effect

## 14 Stereo RCA Input

Use this input to connect audio sources such as DVD and BluRay players, DJ consoles and computers.

## 2.5 Output Section



### 15 Sub

This rotary knob adjusts the subwoofer's volume level from  $-\infty$  to +6 dB.

### 16 Balance

This rotary knob adjusts the relative levels of the left and right channels.

### 17 Mode A/B

This switch configures the output signal sent to Out L/R (19):

- **A: Rec Out:** This mode sends the composite signal of channels 1 to 3 and Link In (20) to a connected audio recorder.

- **B: Ch 2 Thru:** This mode sends the signal routed into Input 2 (10) through to this output for monitoring. See the example in the appendix called Personal Monitoring.

### 18 Out L/R

This is an electrically balanced 1/4" (6.3 mm) output jack. Depending on the Mode A/B switch setting, it sends out a composite of all input signals (including Link In) or just the signal patched into Input 2.

### 19 Setup

Use this switch to configure LUCAS NANO 300 for mono or stereo operation.

### 20 Link In/Out

This 1/4" (6.3 mm) stereo jack serves to connect this LUCAS NANO 300 to another LUCAS NANO 300. Please be sure to use a cord equipped with stereo 1/4" (6.3 mm) jack plugs to do this. No other cables will do.

## 2.6 Speaker Out Section



### 21 Speaker Out to Satellite L / R

Use these 1/4" (6.3 mm) jacks exclusively to connect LUCAS NANO 300 satellites. Do not connect any other devices. If you do, that device and LUCAS NANO 300 may be irreparably damaged.

### 22 Speaker Status Indicators

This dual-color LED tells you what's going on with the Speaker Outs of LUCAS NANO 300 (green = speaker output is active, red = inactive).

Enable and disable outputs using the Setup switch in the output section.

**Note: LUCAS NANO 300's outputs are muted during a system check (see Status LED). The Speaker Status LEDs light up red during this time (about five seconds).**

## 2.7 Connector Panel

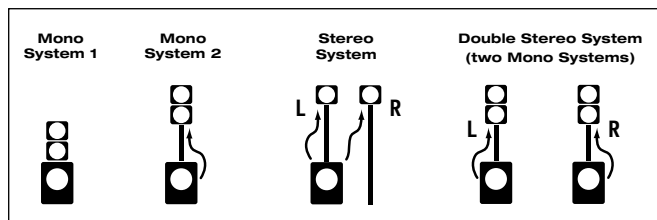
### Mains Socket

Use the factory-included mains cord to connect this socket to a wall outlet.

**Caution! Make sure the local mains voltage matches the voltage specified on LUCAS NANO 300. Connecting it to the wrong mains voltage may destroy its electronic components.**

## 3 Setups

You can set up LUCAS NANO 300 in various configurations:



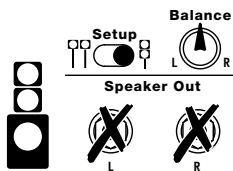
Note that the optionally available LUCAS NANO ADD-ON PACKAGE affords you the greatest flexibility.



Contents: 1x 8m Link/Speaker cord, 1x 2m Link/Speaker cord, 2x height adjustable pole mount, 1x tripod leg, 4x cable ties, 1x bag

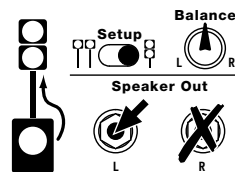
The following examples should help you find the best setup for your application:

### 3.1 Mono System 1



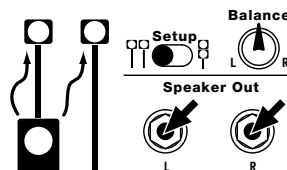
Stack and connect the LUCAS NANO 300 satellites as described in section „1.3, Easy Click Connector“. Then connect the two LUCAS NANO 300 satellites to the LUCAS NANO 300 subwoofer. Be sure to set the Setup switch to Mono (to the right).

### 3.2 Mono System 2



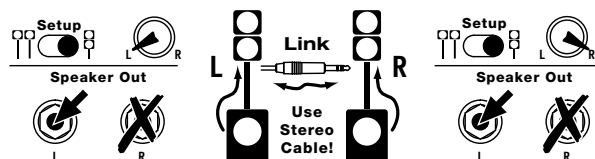
Stack and connect the LUCAS NANO 300 satellites as described in section, „1.3 Easy-Click connector“. Insert the adjustable speaker pole (optional\*) into the pole mount on the subwoofer and attach the two satellites to it. Use a cord equipped with 1/4" (6.3 mm) jack plugs (optional\*) to connect the LUCAS NANO 300 subwoofer's Speaker Out L to the LUCAS NANO 300 satellites. Be sure to set the Setup switch to Mono (to the right).

### 3.3 Stereo System



Insert the adjustable speaker pole (optional\*) into the pole mount on the subwoofer and attach one LUCAS NANO 300 satellite to it. Attach the second satellite to a tripod speaker pole (optional\*). Use a cord equipped with 1/4" (6.3 mm) jack plugs (optional\*) to connect the LUCAS NANO 300 subwoofer's Speaker Out L to the left LUCAS NANO 300 satellite. Then connect the Speaker Out to Satellite R port to the right LUCAS NANO 300 satellite. Be sure to set the Setup switch to Stereo (to the left).

### 3.4 Double Stereo System (two LUCAS NANO 300 systems)



Stack and connect two each LUCAS NANO 300 satellites as described in section „1.3 Easy-Click connector“. Then insert an adjustable speaker pole (optional\*) into each subwoofer pole mount and attach two satellites to each pole. Use cords equipped with 1/4" (6.3 mm) jack plugs (optional\*) to connect the LUCAS NANO 300 subwoofers' Speaker Out L ports to the LUCAS NANO 300 satellites. Be sure to set the Setup switch on both systems to Mono (to the right).

Use a cord equipped with stereo 1/4" (6.3 mm) jack plugs to connect the two LUCAS NANO 300 subwoofers' Link In/Out ports and create a stereo system. Be sure to adjust each side's Balance knob accordingly; that is, turn one to the left and the other to the right.

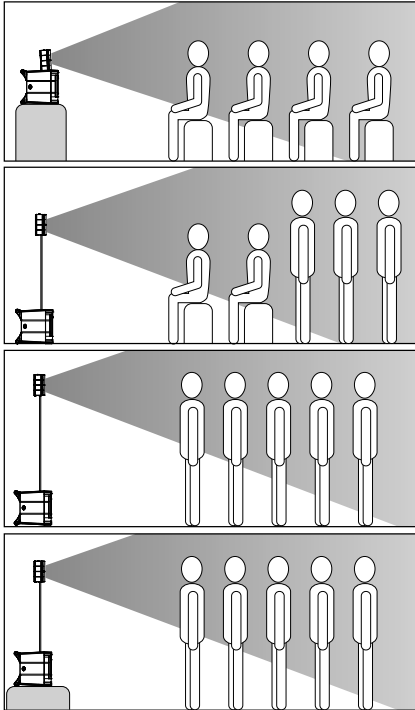
You'll find examples of more applications for two combined LUCAS NANO 300 systems, for example, to cover two rooms, in the appendix starting on page 38.

\*Included in the LUCAS NANO ADD-ON PACKAGE

## 4 Aiming Satellites

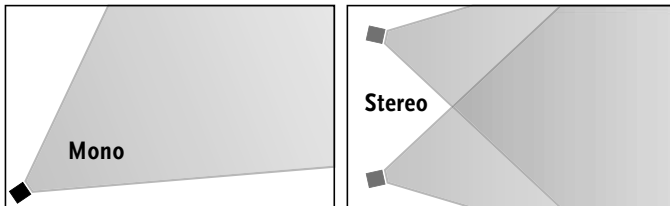
### 4.1 Vertical Alignment

To treat your audience to the most balanced audio image, always aim LUCAS NANO 300 satellites to ear level.



### 4.2 Horizontal Alignment

The satellites' horizontal dispersion angle is around 60°. Depending on room size and whether it's a mono or stereo setup, you may want to turn the satellites in towards the audience area.



## 6 Technical Specifications

### Subwoofer

Power output	160 W @ 2 ohms
Frequency response	44 Hz – fx
Max. SPL@10%THD*	116 dB
Max. SPL Peak*	118 dB
Dimensions (WxHxD)	30 x 39 x 42 cm / 11-13/16 x 15-11/32 x 16-17/32"
Weight	8.3 kg / 18.3 lbs.
*half space	

### Satellite

	Single	Double
Power output	35 W @ 8 ohms	70 W @ 4 ohms
Frequency response	190 Hz – 20 kHz	190 Hz – 20 kHz
Max. SPL@10%THD*	112 dB	116 dB
Max. SPL Peak*	116 dB	120 dB
Dimensions (WxHxD)	13 x 13 x 11.5 cm 5-1/8 x 5-1/8 x 4-17/32"	13 x 24 x 11.5 cm 5-1/8 x 9-15/16 x 4-17/32"
Weight	1 kg / 2.2 lbs.	2 kg / 4.4 lbs.
*half space		

### General Technical Specifications

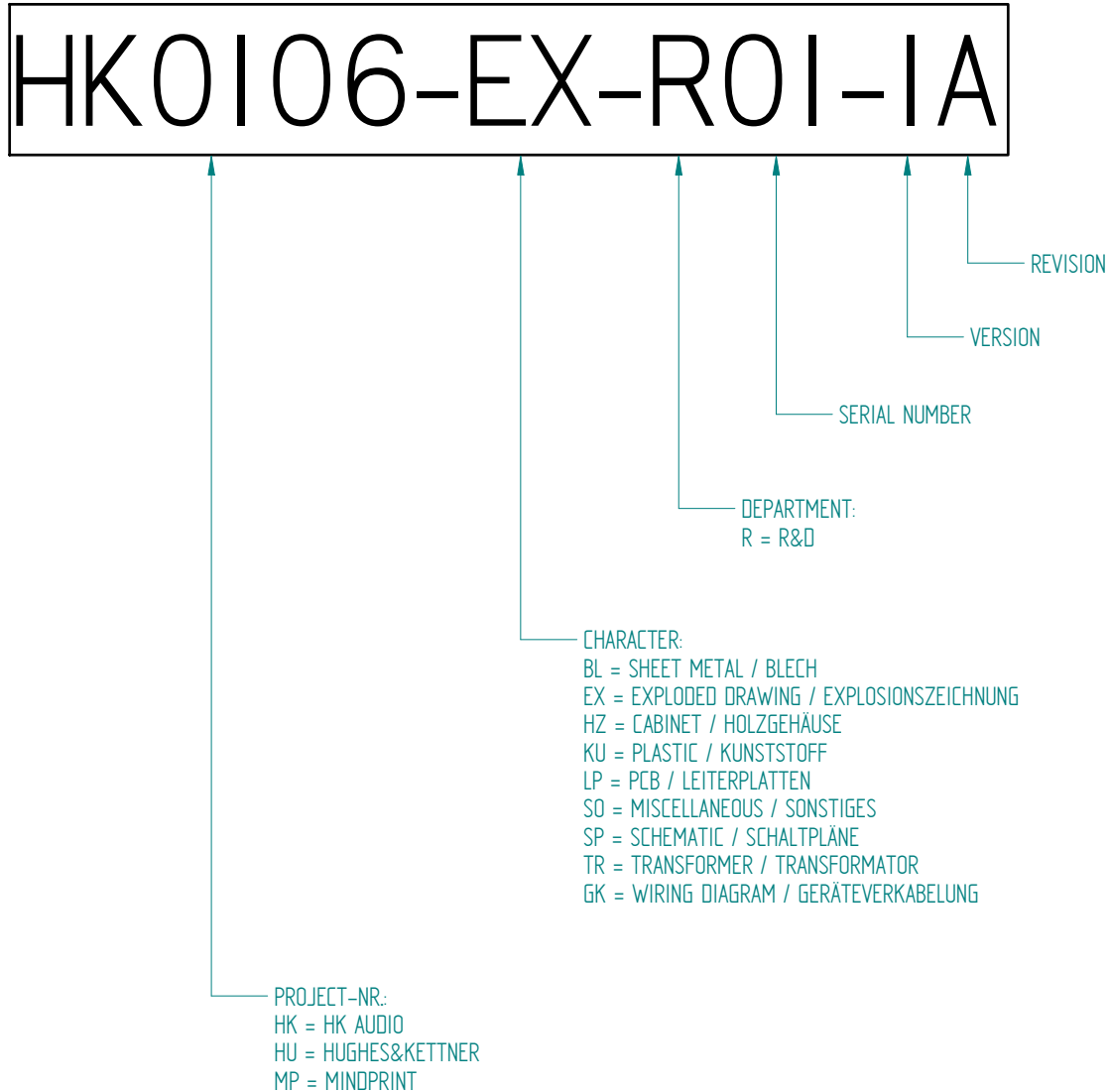
Max. current consumption	3 A at 90 VAC
Inrush current	48 A
Multi-voltage power supply	90 V – 240 V

## 5 Example Applications

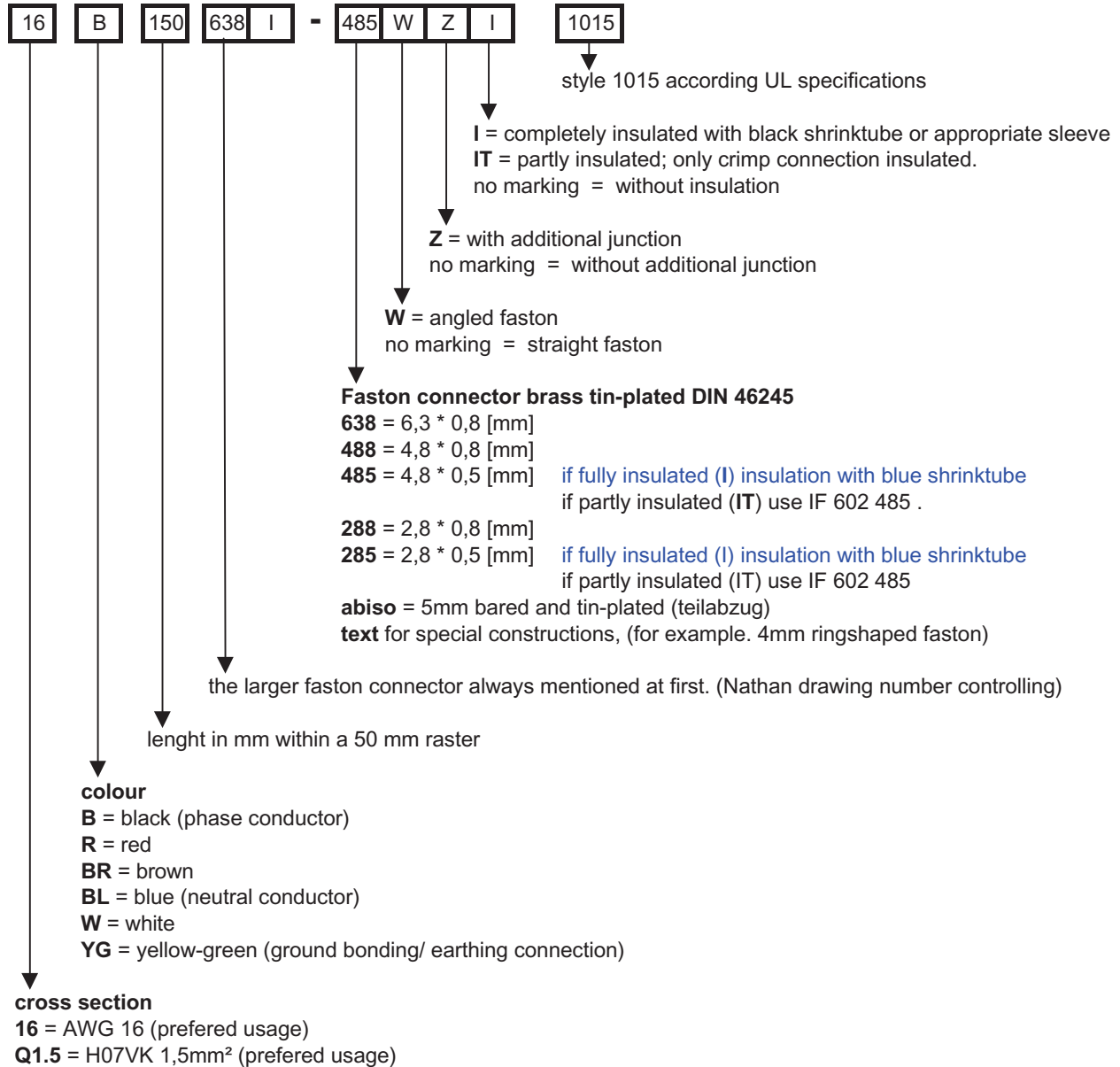
You'll find more examples of applications, configurations and setups in the appendix starting on page 38, including setups for:

- Presentations
- Entertainers
- Instrument/ vocals with live recording
- Keyboard monitoring on stage
- E-drum monitoring at home
- Personal monitoring for e-drums
- DJs
- Setup, cabling and alignment when using two LUCAS NANO 300 systems

# DRAWING-NUMBERS EXAMPLE



## Standard for single wire confection.



wire designation:

**P + lfd Nr.** = AWG single wire black, red, blue, brown or white

**E + lfd Nr.** = AWG single wire green- yellow

**L + lfd Nr.** = twisted AWG double wire, length specification always in twisted condition

**FQL + lfd Nr.** = crossover wiring H07VK

**Regarding special wirings like wiring harness or similar, drawings will be prepared and appropriate drawing numbers will be stored in the article archive.**





# Service Documents

## HK0110

## L.U.C.A.S.

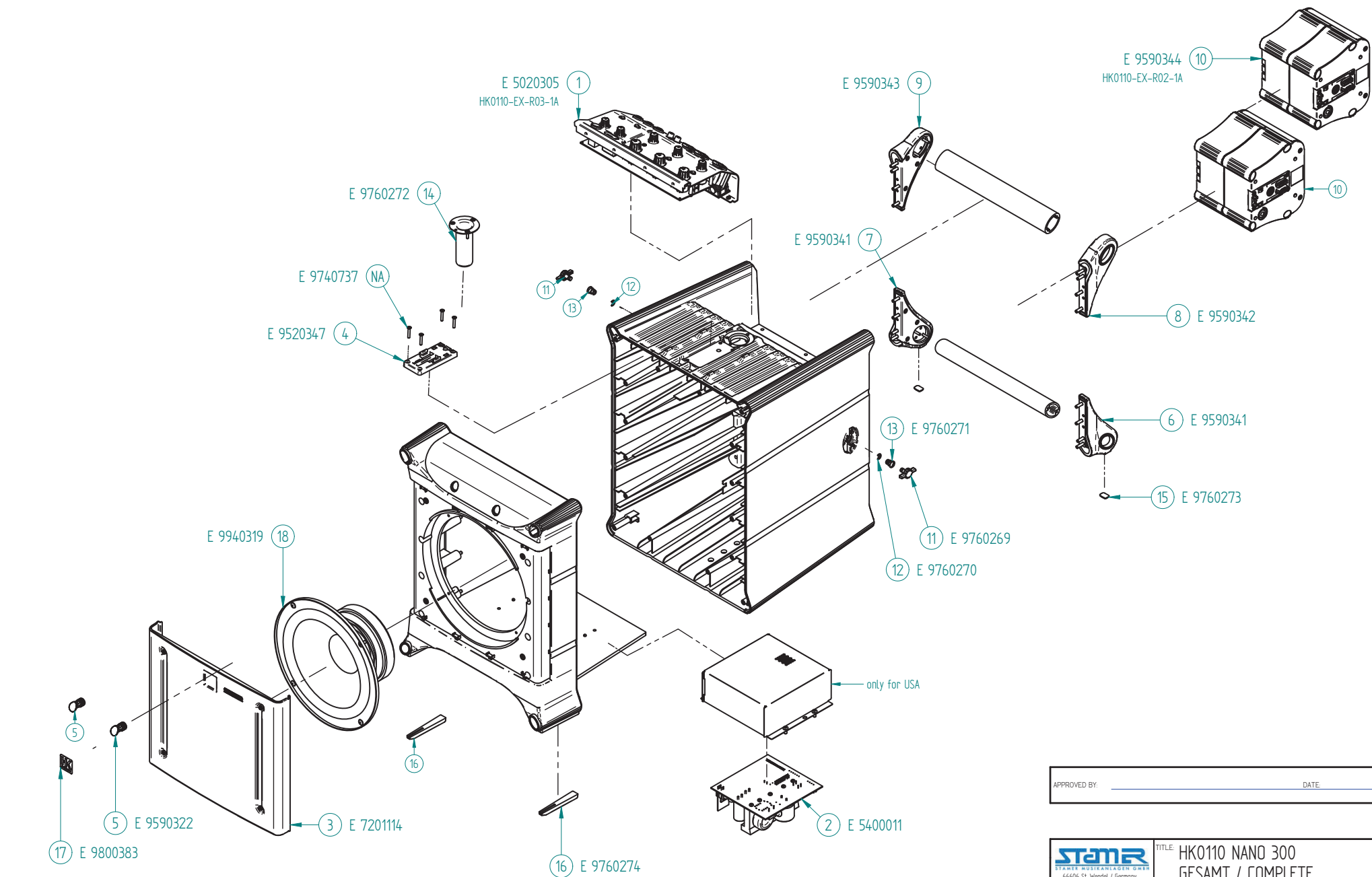
## Nano 300

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**TECHNICAL SERVICE:**

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APPROVED BY: \_\_\_\_\_ DATE: \_\_\_\_\_

<b>STERN</b> <small>STERN NUTZGERÄTE GMBH          66606 St. Wendel / Germany</small>		TITLE: HK0110 NANO 300 GESAMT / COMPLETE	
DRAWING-NO.	HK0110-EX-R01-1A	VERSION	1
DRAWN BY:	D. Kafer	DATE	21.06.2012
CHECKED BY:	K. Ballhorn	DATE	28.06.2012
MATERIAL:	FINISH: -		
FILENAME:	HK0110-EX-R01-1A_Nano_Gesamt		
		REVISION	A
		PAGE	1
		2	PAGES


INDEX	CHANGES	RESP.

Pos.Nr.	part-no. 1	description	Beschreibung	quantity
1	5020305	Control-Panel	Vorstufe	1
2	5400011	Power Amp Board	TripleAmp 200	1
3	7201114	Subwoofer Grille	Frontgitter	1
4	9520347	Easy Click	Easyclick Out	1
5	9590322	Front Baffle Screw hole cover	Schraubenabdeckung	2
6	9590341	Handle Support L	Griffhalter links unten	1
7	9590341	Handle Support R	Griffhalter rechts unten	1
8	9590342	Handle Left up Support	Griffhalter links oben	1
9	9590343	Handle Right up Support	Griffhalter rechts oben	1
10	9590344	Satellite complete	Top Komplett	2
11	9760269	Switch locker	Sicherungsbolzen für Top	2
12	9760270	E-Ring	E-Ring	2
13	9760271	Switch locker spring	Feder für Sicherungsbolzen	2
14	9760272	Telescopic pole holder	Pole-Halter Nano-Sub	1
15	9760273	Rubber Pad	Gummifuß hinten	2
16	9760274	Rubber foot	Gummifuß	2
17	9800383	HK-Logo	HK Logo	1
18	9940319	Celestion 8" 20hm	Celestion 8 Zoll 20hm	1
19'	9980299	Butyl Tape	Abdichtmasse	2,00 lfm

APPROVED BY: \_\_\_\_\_

DATE: \_\_\_\_\_

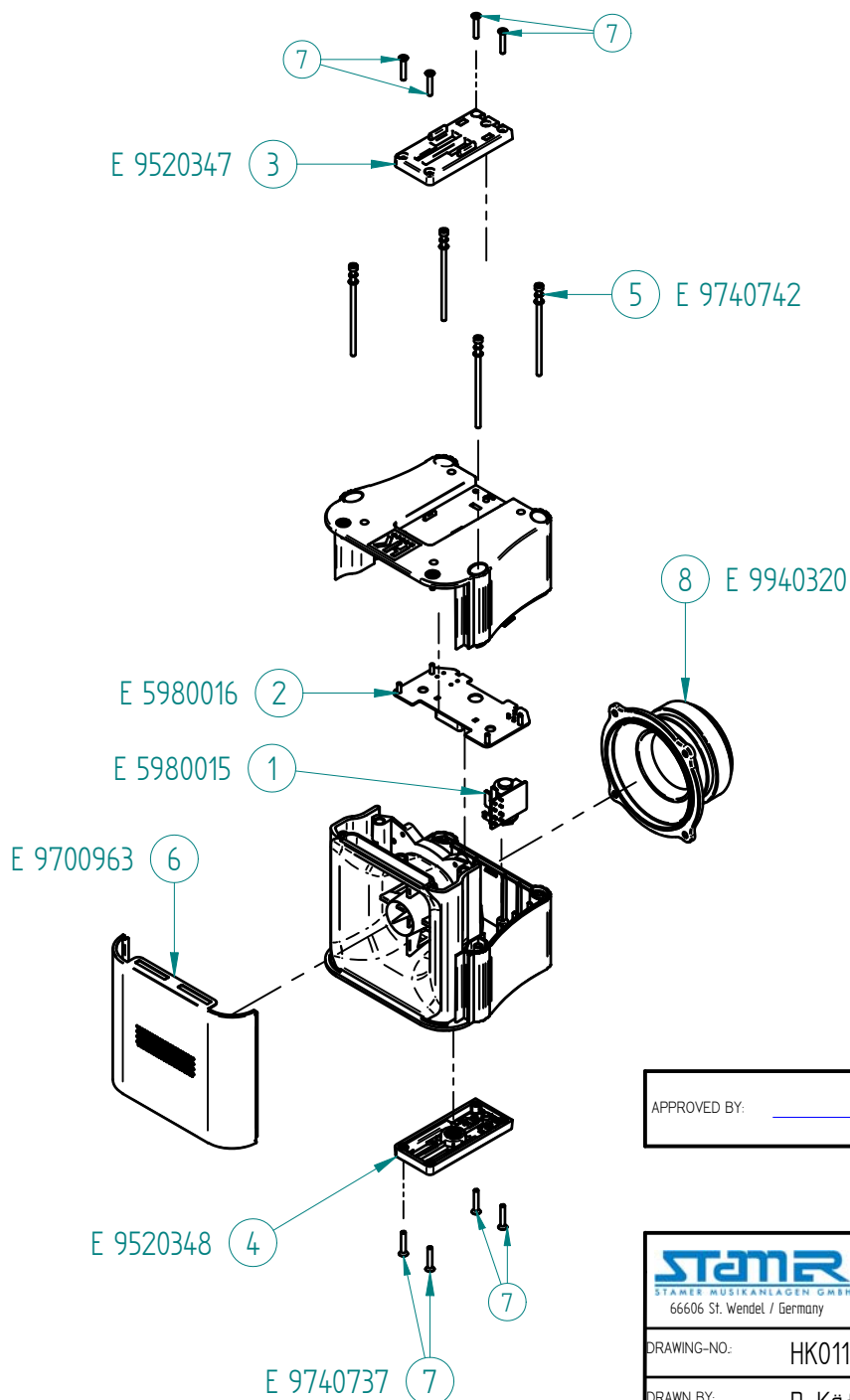
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GESAMT / COMPLETE

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DRAWN BY:	D. Kafer	DATE:	21.06.2012	PAGE	2
CHECKED BY:	K. Ballhorn	DATE:	28.06.2012	2	PAGES
MATERIAL:	FINISH: -				
FILENAME	HK0110-EX-R01-1A_Nano_Gesamt				

Pos.Nr.	part-no. 1	description	Beschreibung	quantity
1	5980015	6,5 Jack Inputboard	Top Eingangsplatine	1
2	5980016	Top Cross-Over Board	Top FQW Platine	1
3	9520347	Easy Click	Easyclick Out	1
4	9520348	Easyclick In	Easyclick In	1
5	9740742	Satellite Screw	Top Gehäuseschraube	4
6	9700963	Satellite Gitter	Frontgitter Top	1
7	9740737	Screw B-Tite Flat-CS	9740737	8
8	9940320	Celestion 3,5Zoll speaker 80hm	Celestion 3,5Zoll 80hm	1

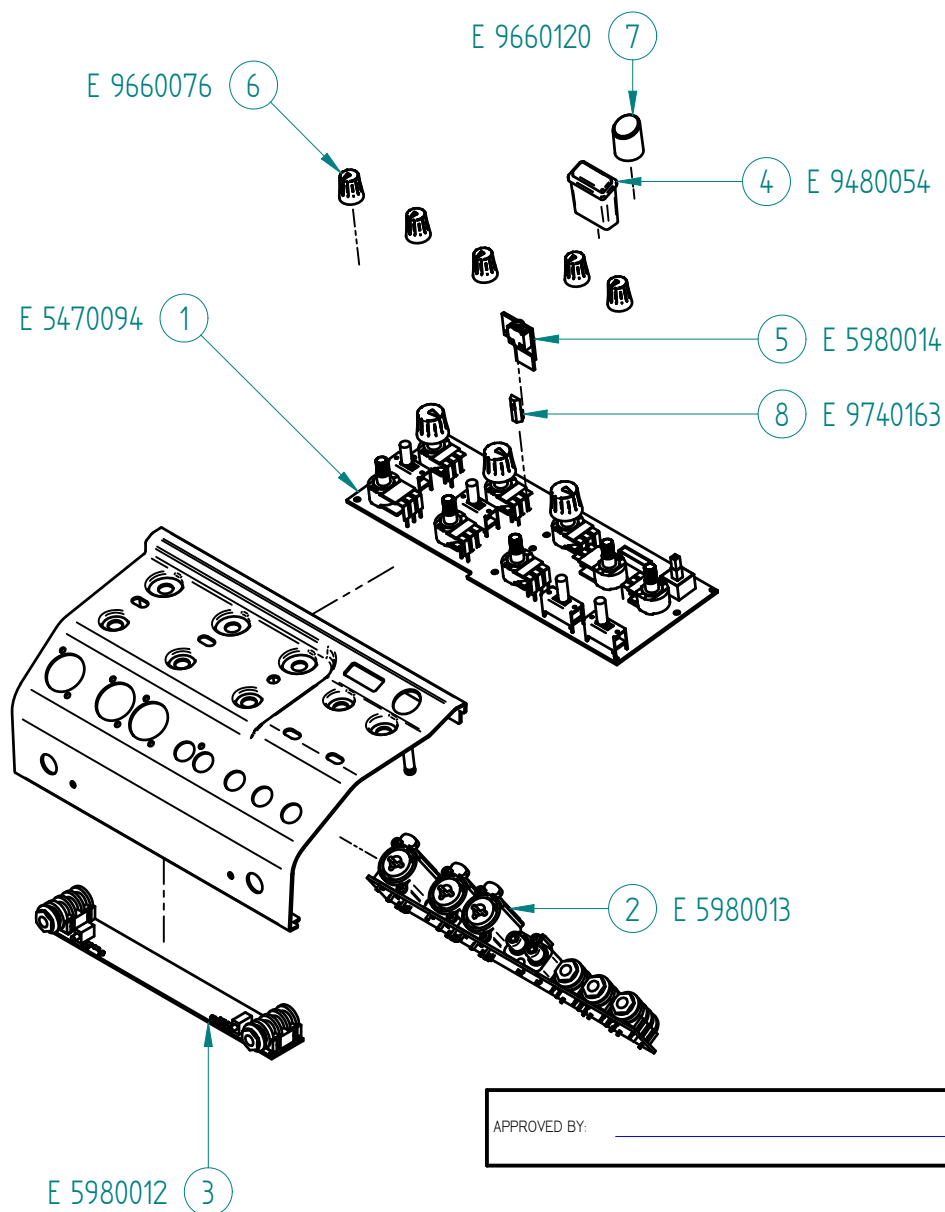


APPROVED BY: \_\_\_\_\_

DATE: \_\_\_\_\_

<b>STAMER</b> <small>STAMER MUSIKANLAGEN GMBH 66606 St. Wendel / Germany</small>		<b>TITLE: HK0110 NANO 300 TOP</b>		
DRAWING-NO:	HK0110-EX-R02-1A	VERSION:	1	REVISION: A
DRAWN BY:	D. Käfer	DATE:	22.06.2012	PAGE: 1
CHECKED BY:	K. Ballhorn	DATE:	28.06.2012	1 PAGES
MATERIAL:	FINISH: -			
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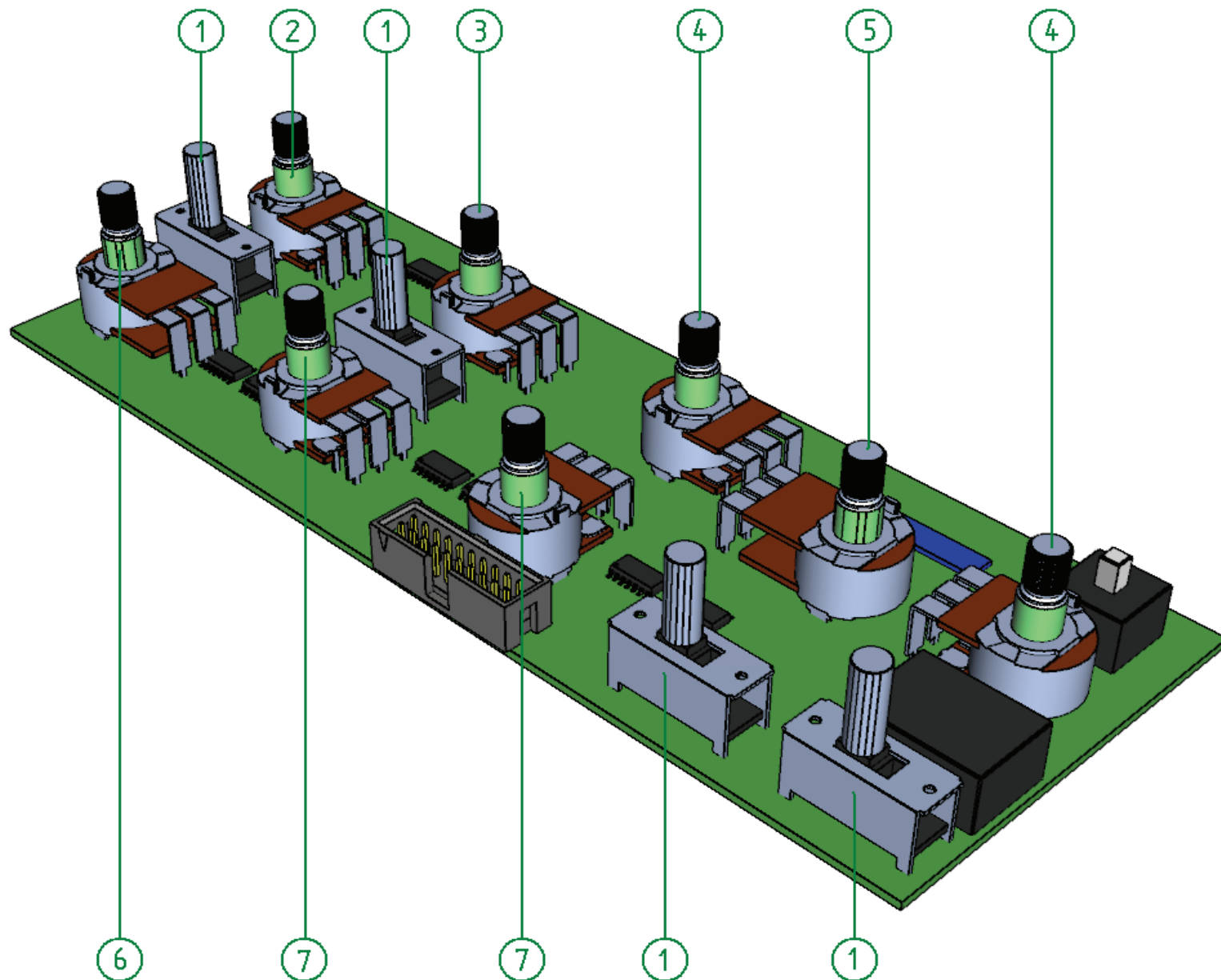
Pos.Nr.	part-no. 1	description	Beschreibung	quantity
1	5470094	Preamp	Vorstufe	1
2	5980013	Inputboard	Eingangsplatine	1
3	5980012	Output Board	Ausgangsplatine	1
4	9480054	LED bar holder	Lichtleiter LED bar	1
5	5980014	3,5 Jack Inputboard	3,5 Klinke Eingangsplatine	1
6	9660076	Knob 13mm	Knopf Poti 13mm	5
7	9660120	Power switch cover	Knopf Powerschalter	1
8	9740163	PCB holder 90°	Befestigungselement M3x15	1



APPROVED BY: \_\_\_\_\_

DATE: \_\_\_\_\_

<b>STAMER</b> <small>STAMER MUSIKANLAGEN GMBH 66606 St. Wendel / Germany</small>		TITLE: HK0110 NANO 300 CHASSIS	
DRAWING-NO:	HK0110-EX-R03-1A	VERSION:	1
DRAWN BY:	D. Käfer	DATE:	22.06.2012
CHECKED BY:	K. Ballhorn	DATE:	28.06.2012
MATERIAL:		FINISH:	-
FILENAME:	HK0110-EX-R03-1A_Nano_Chassis		
			1 PAGES



HK AUDIO	TITLE	
	SPARE PARTS LIST	
	LUCAS NANO 300 HK0110	
	PREAMP PCB	
DRAWING-NO	VERSION	REVISION
	I	A
DRAWN BY	DATE	PAGE
C. SCHMIDT	12.6.14	I
CHECKED BY	DATE	2 PAGES
FILENAME	HK0110_LP_R01_SPAREPARTSLIST	

Spare Parts List for:  
 Project:  
 Project Number  
 Assembly:

HK0110-LP-R01  
 LUCAS Nano 300  
 HK0110  
 PREAMP

pos.	part. no.	description	Bezeichnung	reference	designators
1	9500101	slide switch 4PDT	Schiebeschalter 4fach, 2pol	SW1	Mic / Line Level CH1
1	9500101	slide switch 4PDT	Schiebeschalter 4fach, 2pol	SW2	Instr. / Line Level CH2
1	9500101	slide switch 4PDT	Schiebeschalter 4fach, 2pol	SW3	Mode A / B
1	9500101	slide switch 4PDT	Schiebeschalter 4fach, 2pol	SW4	Setup Stereo / Mono
2	9140109	pot B200K lin stereo CC	Poti B200K lin stereo CC	P1	Gain CH1
3	9140098	pot B10K lin stereo CC	Poti B10K lin stereo CC	P2	Gain CH2
4	9140108	pot B100K lin stereo CC	Poti B100K lin stereo CC	P3	Gain CH3
4	9140108	pot B100K lin stereo CC	Poti B100K lin stereo CC	P8	Balance
5	9140113	pot B10K lin mono CC	Poti B10K lin mono CC	P7	Subwoofer-Level
6	9140111	pot B10K lin mono	Poti B10K lin mono	P4	Contour CH1
7	9140100	pot B10K lin stereo	Poti B10K lin stereo	P5	Contour CH2
7	9140100	pot B10K lin stereo	Poti B10K lin stereo	P6	Contour CH3

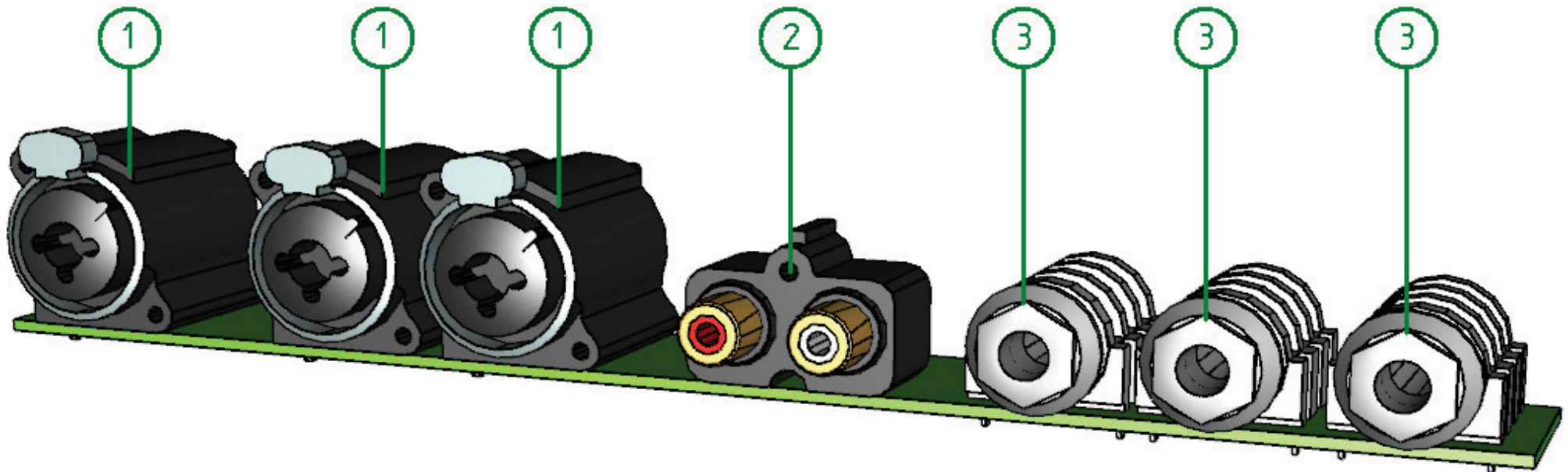
<b>HK AUDIO</b>		TITLE: SPARE PARTS LIST LUCAS NANO 300 HK0110 PREAMP PCB	
DRAWING-NO	VERSION	1	REVISION A
DRAWN BY C. SCHMIDT	DATE	12.6.14	PAGE 2
CHECKED BY	DATE		2 PAGES
FILENAME HK0110_LP_R01_SPAREPARTSLIST			



Spare Parts List for:  
Project:  
Project Number  
Assembly:

HK0110-LP-R02  
LUCAS Nano 300  
HK0110  
INPUT PCB

pos.	part. no.	description	Bezeichnung	reference	designators
1	9520318	XLR/jack connector	XLR/Klinke Kombibuchse	J1, J2, J3	Input CH1 + CH2
2	9520368	RCA socket W/R	Cinchbuchse 2fach Wprint rt/ws	J4	Input CH3
3	9520361	jack stereo print GP-Style	Klinkenbuchse stereo print GP-Style	J6, J7	Balanced Out L+R
3	9520361	jack stereo print GP-Style	Klinkenbuchse stereo print GP-Style	J8	Link In/Out



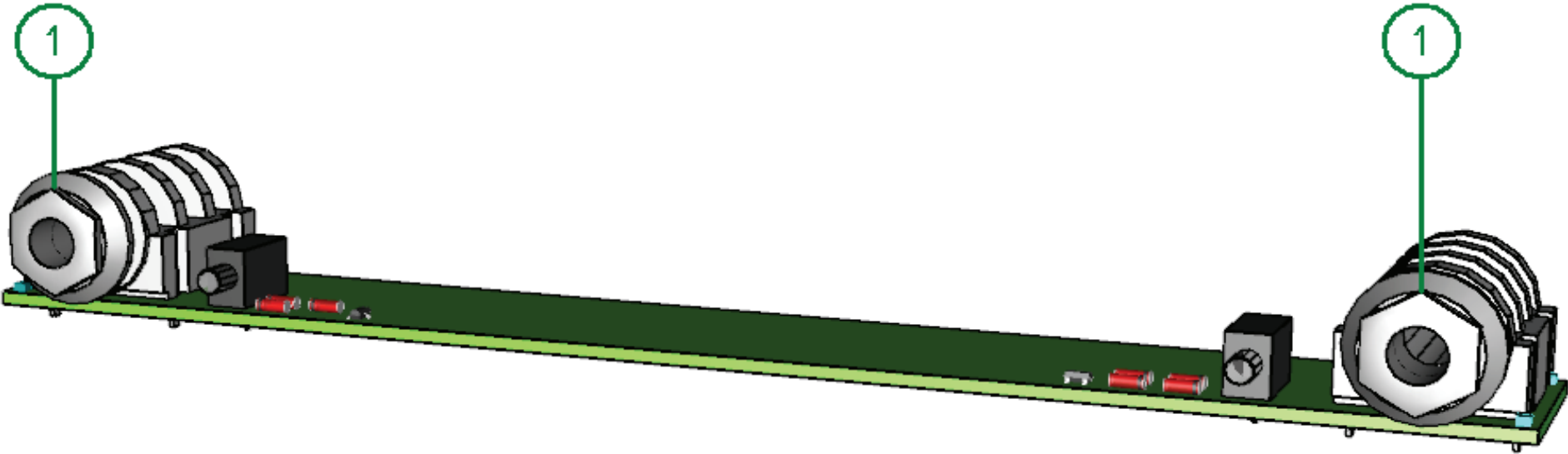
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	DRAWN BY C. SCHMIDT	DATE 12.6.14 PAGE 1
	CHECKED BY	DATE   PAGES
	FILENAME HK0110_LP_R02_SPAREPARTSLIST	



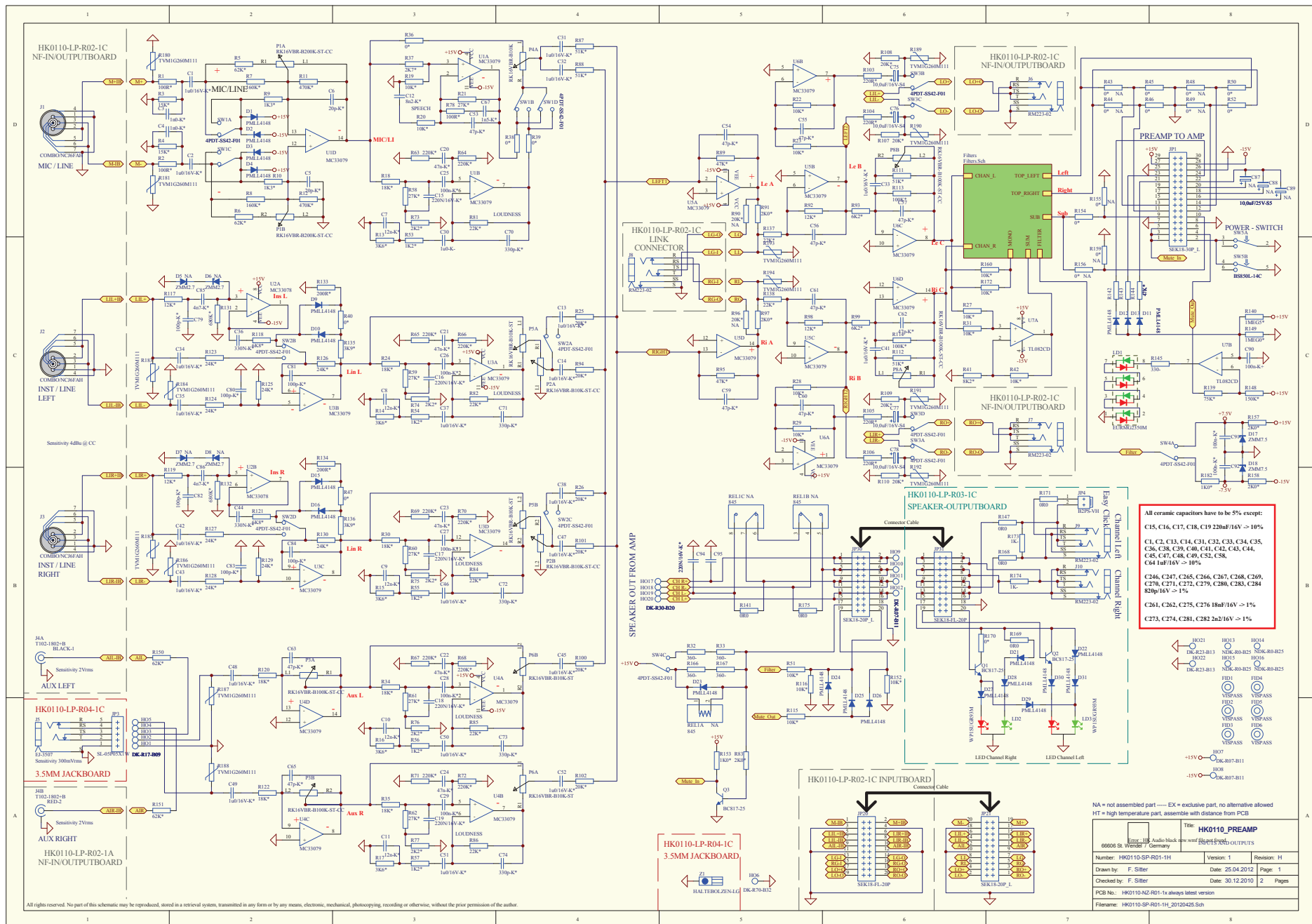
Spare Parts List for:  
Project:  
Project Number  
Assembly:

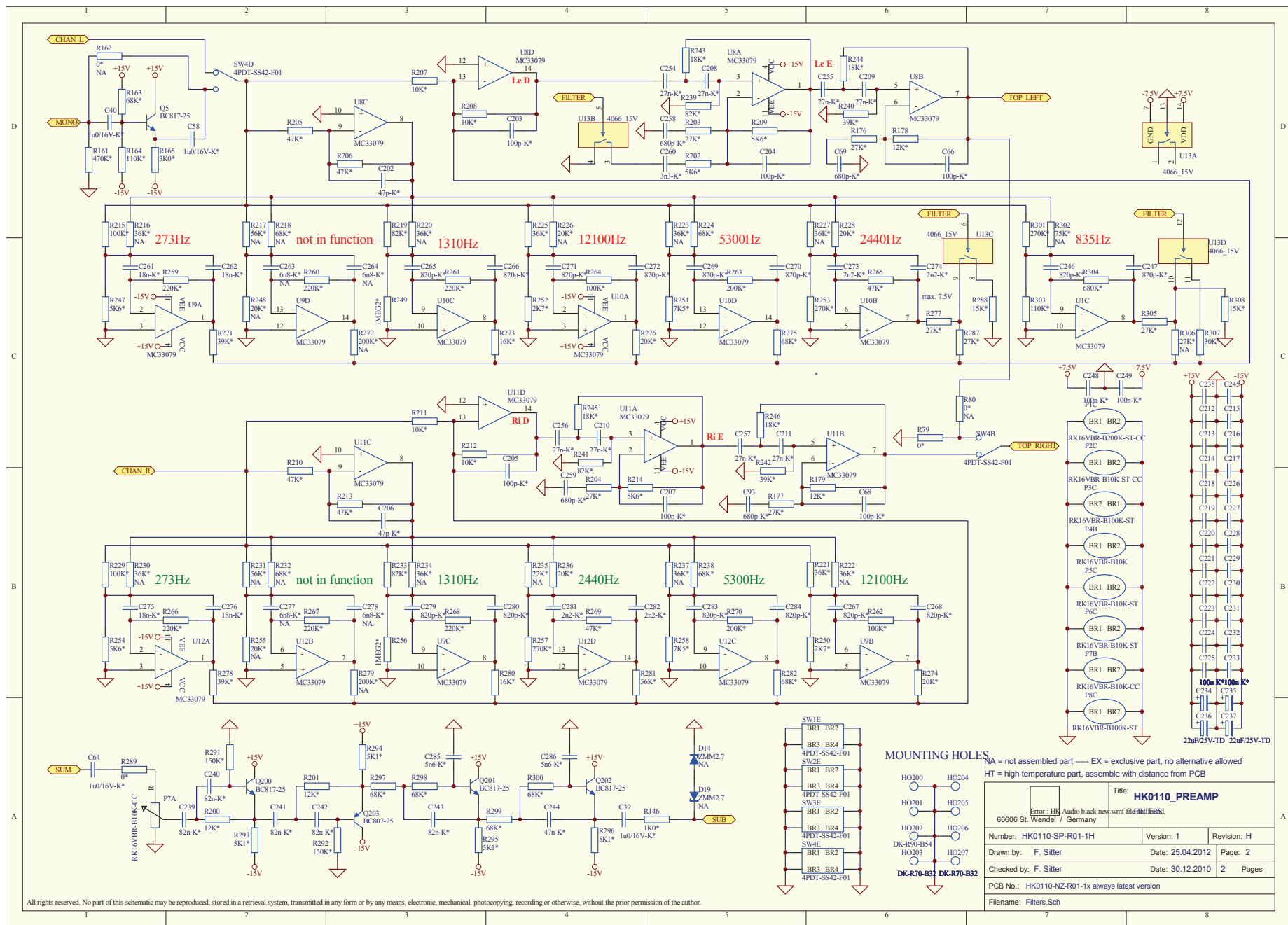
HK0110-LP-R03  
LUCAS Nano 300  
HK0110  
OUTPUT PCB

pos.	part. no.	description	Bezeichnung	reference	designators
3	9520361	jack stereo print GP-Style	Klinkenbuchse stereo print GP-Style	J9, J10	Speaker Out L+R



HK AUDIO	TITLE				
	SPARE PARTS LIST				
	LUCAS NANO 300 HK0110				
	OUTPUT PCB				
DRAWING-NO	VERSION	1	REVISION	A	
DRAWN BY	C. SCHMIDT	DATE	12.6.14	PAGE	1
CHECKED BY	DATE	1 PAGES			
FILENAME					
HK0110_LP_R03_SPAREPARTSLIST					





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TRIPLE-AMP 200  
Article No: E 5400011 (100-240V)

To ensure the procedure of our quality assurance  
(burn-in-test, quality-test,...) please send the complete  
module to our technical service for replacement.

For customer inquiry please contact our service-team.

